VIBE ROUNDS

AI-Augmented Clinical Decision Support for the Modern Clinician

Concept Document — Version 1.0

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What vibe coding is to software engineers, Vibe Rounds is to clinicians —

the ability to think out loud with an AI that sees, hears, and understands medicine.

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1. The Core Idea

Vibe coding emerged when developers discovered they could describe intent to an AI and receive working code — lowering the floor for creation and raising the ceiling for what one person can build. Vibe Rounds applies this same paradigm to clinical medicine.

A clinician on rounds no longer needs to toggle between EMR tabs, lookup tools, radiology viewers, and reference databases. Instead, they command a multimodal AI co-pilot in natural language — speaking, pointing, showing — and receive synthesized, context-aware clinical support in real time.

> **Core Premise**
> *Vibe Rounds is not an AI replacing the clinician. It is the clinician amplified — making better decisions, faster, with more information at their fingertips than was previously possible.*

2. The Problem Being Solved

Modern clinical care is cognitively overloaded. The average physician interrupts their train of thought dozens of times per shift to retrieve information from disconnected sources. This friction causes:

Challenge	Clinical Impact
Cognitive overload	Missed differentials, anchoring bias
Information fragmentation	Incomplete clinical picture at point of care

Decision fatigue	Suboptimal choices late in shift
Lookup friction	Delayed treatment initiation
Documentation burden	Reduced time with patients

3. What Vibe Rounds Looks Like

Vibe Rounds is an always-on, multimodal AI layer that travels with the clinician through their workflow. It operates across five core modalities:

🎙️ **Voice Command**
Clinicians speak naturally — 'What are the drug interactions for this patient's current meds?' or 'Summarize this chest X-ray finding' — and receive immediate, patient-contextualized responses.

👁️ **Vision & Image Analysis**
Point the device camera at a wound, rash, ECG printout, or radiology image. The AI analyzes, classifies, and offers differential diagnoses or measurement support.

📋 **EMR Synthesis**
Live EMR integration surfaces the most relevant data for each patient: flagging abnormal trends, surfacing relevant past history, and generating pre-populated SOAP notes.

🔬 **Lab & Imaging Interpretation**
Real-time interpretation of incoming results with clinical context — not just normal ranges, but what the values mean for this patient's trajectory.

🧠 **Differential Generation**
At any moment, the clinician can ask for a ranked differential, evidence-based next steps, or a quick literature summary without leaving the bedside.

4. The Interaction Model

Vibe Rounds mirrors the intuition behind vibe coding: the AI does the heavy retrieval and synthesis so the human can focus on judgment. The interaction is intentionally low-friction.

4.1 Command Styles

- Natural language voice: 'Is there a contraindication to giving metformin here?'
- Visual pointing: Show an ECG strip to the camera for instant interpretation
- Contextual auto-suggestion: AI proactively flags a critical lab value while the physician reviews another patient

- Structured query: Type or dictate structured prompts for medication dosing, protocol lookup
- Scribe mode: Continuous ambient documentation of the clinical encounter

4.2 A Typical Vibe Round Encounter

1	Physician walks into patient room. Vibe Rounds loads patient summary automatically via EMR integration.
2	Physician asks: 'Any new labs since last night?' AI surfaces the relevant delta and flags the elevated creatinine trend.
3	Physician shows camera to wound on patient's leg. AI notes features consistent with cellulitis, Stage II, suggests antimicrobial coverage options.
4	Physician says: 'Generate my SOAP note.' AI drafts from the ambient conversation and EMR data.
5	Physician reviews, approves, and signs. Note time: 45 seconds.

5. Clinical Use Cases

5.1 Inpatient Medicine

- Morning rounds pre-brief: AI-synthesized patient summaries with overnight event highlights
- Complex polypharmacy review with real-time interaction checking
- Sepsis bundle adherence monitoring with proactive alerts
- Readmission risk flagging with suggested interventions

5.2 Emergency Medicine

- Trauma bay support: immediate differential and workup recommendation
- Triage augmentation: risk stratification based on vitals and chief complaint
- Toxicology consult: instant management protocols by ingestion type
- FAST exam or ECG interpreted at bedside via camera

5.3 Surgery & Procedural Specialties

- Pre-operative risk scoring from patient data
- Intraoperative anatomy reference and complication management lookup
- Post-op monitoring: flagging early signs of anastomotic leak or DVT

5.4 Outpatient & Primary Care

- Preventive care gap identification at each visit
- Chronic disease management protocol adherence
- Referral letter and prior authorization draft generation
- Patient education material generation in the patient's language

6. Design Principles

Principle	What It Means in Practice
Clinician-in-Command	AI provides options, evidence, and synthesis. The physician makes every decision. The system never overrides, never auto-orders.
Zero Context Switching	All information surfaces in the clinician's natural workflow — no separate app, no separate login.
Evidence Transparency	Every AI output cites its source: guideline, study, or EMR data. No black boxes.
Fail Safe, Fail Loud	When uncertain, the AI says so. Confidence thresholds are explicit. Ambiguity triggers escalation, not hallucination.
Privacy First	Patient data never leaves the institutional environment. On-premise or private cloud deployment. HIPAA-compliant by architecture.
Specialty-Aware	The AI adapts its vocabulary, protocols, and emphasis to the user's specialty and institution.

7. Technical Architecture

Vibe Rounds is designed as a modular, hospital-deployable AI layer, not a SaaS tool. Core components:

7.1 AI Core

- Multimodal foundation model (vision + language) fine-tuned on clinical data
- Retrieval-augmented generation (RAG) over institutional knowledge base, formularies, and protocols
- Specialty-specific adapter layers for cardiology, oncology, critical care, and more
- Continuous learning loop from de-identified, consent-managed institutional data

7.2 Integration Layer

- HL7 FHIR R4 integration with major EMRs (Epic, Cerner, Meditech, Allscripts)
- DICOM viewer integration for radiology and pathology AI analysis
- Pharmacy system integration for real-time formulary and interaction checking
- Lab system integration for trend analysis and critical value management

7.3 Interface Layer

- Mobile app for smartphones and tablets (iOS, Android)
- Smart glasses integration for hands-free bedside use
- Ambient microphone array for passive room-level scribe mode
- Integration into existing workstation/COW (computer on wheels) setups

8. Vibe Rounds vs. Existing Tools

Vibe Rounds is not a replacement for existing clinical tools. It is the connective layer that makes them coherent:

Tool Category	Current State	With Vibe Rounds
EMR / EHR	Data entry burden, siloed data	Synthesized, contextual, surfaced proactively
Clinical Decision Support	Alert fatigue, non-contextual	Conversational, ranked, evidence-linked
Medical Reference (UpToDate etc.)	Manual lookup, context-switching	Embedded in workflow, patient-specific
Radiology / Path AI	Isolated tools, separate logins	Integrated at point of care, narrated
Documentation / Scribe	Post-hoc transcription	Ambient, real-time, clinician-approved

9. Safety, Ethics & Governance

Non-Negotiable

Vibe Rounds is a decision support system. It does not prescribe, order, or act. Every output is

presented as information for clinician review, never as instruction.

9.1 Clinical Safety

- All AI suggestions carry explicit confidence levels and source citations
- Critical alerts (e.g., critical drug interactions) are mandatory review, not dismissible
- The system learns from overrides and flags systematic disagreements for review
- Regular clinical validation cycles with specialty advisory boards

9.2 Data Privacy

- On-premise or private cloud deployment — data never leaves the institution
- Role-based access control aligned with institutional permissions
- Full audit log of every AI interaction, queryable by compliance teams
- De-identification for any model improvement pipelines with explicit consent frameworks

9.3 Regulatory

- FDA Software as a Medical Device (SaMD) classification compliance pathway
- CE Mark pathway for European deployment
- Institutional IRB partnership for continuous outcome monitoring
- Bias auditing: demographic, disease-prevalence, and specialty equity checks

10. The Vision: Medicine That Thinks With You

The best clinicians are not those with perfect recall — they are those who reason well under uncertainty, integrate disparate information, and communicate clearly with patients and teams. Vibe Rounds does not aim to replace that excellence. It aims to remove the friction that prevents even great clinicians from operating at their peak.

A resident who can voice-query a differential at 3 AM will catch things they would have missed from exhaustion. An attending who gets a proactive flag on a worsening lactate trend will escalate a patient hours earlier. A GP who can generate a referral letter in 30 seconds will spend those saved minutes listening.

That is what Vibe Rounds is for: not replacing clinical intelligence, but giving it the tools to be consistently, reliably better.

"The best version of every clinician,
at every hour, for every patient."

— The Vibe Rounds Vision Statement

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